Curriculum Vitae

Reinhard Schwienhorst

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University education

- 2000 PhD - Physics, University of Minnesota, Minneapolis, Minnesota
  Thesis Title: A New Upper Limit for the Tau-Neutrino Magnetic Moment
  Thesis Advisor: Professor Roger Rusack
- 1995 Physik Diplom, Westfälische Wilhelms Univerität Münster, Germany
  Diplom Title: Elektron-Photon Korrelationen in der Elektronenstossionisation
  Diplom Advisor: Professor Karl Blum

Positions held

- Professor, Michigan State University, since August 2017.
- Associate Professor, Michigan State University, 2012 to 2017.
- Visiting Professor at LPSC Grenoble, France, 2014 to 2015.
- Assistant Professor, Michigan State University, 2006 to 2012.
- Visiting Lecturer, Université de Provence, Aix-Marseille, France, June 2008.
- Research Associate, Michigan State University, 2000 to 2005.
- Research Associate, University of Minnesota, 2000.
- Research Assistant, University of Minnesota, 1997 to 2000.
- Teaching Assistant, University of Minnesota, 1995 to 1997.

Awards/Fellowships

- US ATLAS Scholar, visiting Argonne National Laboratory, 2015 to 2016.
- College of Natural Sciences Teacher-Scholar award at MSU, 2012.
- NSF CAREER award, 2010.
- Thomas H. Osgood Memorial Faculty Teaching Award at MSU, 2008.
- Tollestrup award for a postdoctoral research project, Fermilab, 2005.
- Graduate School Fellowship, University of Minnesota, 1998.
- Teaching Assistant recognition award, University of Minnesota, 1996.

Teaching

I strive to improve student learning and to enhance the student experience in every course that I teach. At MSU, I have introduced assessment testing (in the form of pre- and post-test) to every class I have taught, including upper-level courses and labs. I rely on clicker questions and similar interactive tools to monitor student understanding in lectures. I also maintain TA manuals for every course that I teach, not only lab courses but also lecture courses where TAs mainly spend time in the help room.

- Physics for Scientists & Engineers 1&2 (PHY 183&184), a large lecture class.
- Undergraduate Physics Laboratory I and II (PHY 251, 252), a large lab course.

- Electronics (PHY 440), lectures and labs for about 30 juniors and seniors in Physics.
- Thesis adviser to Sarah Heim and Weigang Geng, both graduated in 2012.
    - Heim won a MSU Tracy Hammer award and a CNS dissertation completion fellowship and NSF student at CERN support.
    - Geng won a French Eiffel fellowship to spend 1 year at CPPM in France.
- Thesis adviser to Brad Schoenrock and Kuan-Yu Lin (current).
- Supervisor of many undergraduate students.
    - Several undergrads working with me have won a MSU Physics Hantel research Fellowship: Elizabeth Drueke in 2014/2015, Charles Mueller in 2010/2011.
    - Joseph Nutter was selected as a CNS 2013/2014 Dean's Research Scholar.

Research

I am exploring the energy frontier, studying the laws of nature at the highest energies. My interest is the top quark, which is a key to the fundamental understanding of our universe. I study top quark electroweak interactions, and in particular its connection to electroweak symmetry breaking and new physics. For the past ten years, I have focused on electroweak production of single top quark events at the Tevatron and the LHC.

- ATLAS experiment at the LHC at CERN, 2006 – present.
    - Top group co-convener (2016-2018).
    - Single top quark physics, SM measurements and new physics searches in single top final states. Single top convener 2011 to 2012.
    - Member of the top LHC working group, single top combinations (2014-2017).
    - Searches for new heavy bosons Z' decaying to leptons (2012) and to *b*-quarks (2016).
    - Editor for many internal notes, conference notes and ATLAS publications.
    - Editorial board chair and editorial board member for top and Higgs analyses.
    - Member of US ATLAS analysis support panel (2014-2016), organizing and reviewing presentations, and chair of the 2014 search committee to find the next US ATLAS deputy physics support manager.
    - Level 3 manager for fiber plant phase 1 upgrade project, funded by DOE (since 2014).
    - Deliverable manager for phase 2 muon sMDT upgrade project (since 2016).
    - L1Calo on-call expert in summer 2010, many shift leader and trigger shifts.
    - Team leader for MSU since 2012.
- Phenomenological top quark studies (2004 – present).
    - Single top at NLO calculations and phenomenological studies for both Tevatron and LHC, several phenomenology papers.
    - New physics models in single top and supersymmetry, several papers.
    - Snowmass 2013 studies on single top SM and new physics production.
    - Co-convener of the top quark working group for the Snowmass 2013 effort to plan the future of US HEP.
- D0 experiment at the Tevatron at Fermilab, 2000 – present.
    - Single top quark physics, searches for new physics in single top. Single top convener at two different times, responsible for Tevatron combinations.
    - L2 Trigger, initially responsible for commissioning and operations.
- Neutrino physics as part of my PhD studies. I was a member of the MINOS and DONUT collaborations.

Outreach

- Planetarium show development.
    - Relics of the Big Bang, traditional planetarium show on the LHC and the ATLAS experiment (2011). I was the executive producer.
    - Phantom of the Universe, full-dome planetarium show, in collaboration with LBNL and UTA and others (2016). I am one of three executive producers.
- Various smaller outreach projects, public talks, panel discussion member.
    - MSU science festival event in 2014 with virtual visit to CERN.
    - Public presentations in connection with the planetarium show and with the "Particle Fever" movie.

Service at MSU and in HEP

- 2016 and 2017: Organizer of two workshops on new physics interpretations at the LHC, first chair and then committee member.
- 2015 – present: Advisory board member for QuarkNet.
- 2014 – present: Member of the LHC top working group.
- 2014: Chair of the calculus-based undergrad intro physics committee in PA at MSU.
- 2012-2013: Co-chair of the top quark working group for Snowmass 2013.
- 2012: Heavy flavor session co-organizer for the DIS meeting in Bonn, Germany.
- 2005 – present: member of various D0 and ATLAS analysis review committees.
- 2011: LHC Physics session chair at the NAS China-US Kavli symposium in Shenzhen, China.
- 2011 – present: Reviewer for Nucl. Instr. Methods A.
- 2011 – present: Reviewer of NSF and DOE proposals.
- 2011: Top quark session organizer for the DPF meeting in Providence, RI.
- 2009 – 2013: Graduate quantum mechanics exam committee at MSU.
- 2007: Co-chair of the organizing committee for the DØ workshop at MSU.
- 2006 – 2009: Undergraduate teaching committee at MSU.
- 2006 – present: Reviewer for Phys. Rev. Lett and Phys. Rev. D.
- 2006: Chair of the single top quark session at the APS meeting in Dallas, Texas.
- 2005 – 2011: DØ authorship committee.

Organizations

- American Physical Society (since 1996).
- American Association for the Advancement of Science (since 2005).
- American Association of Physics Teachers (since 2007).